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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/644,680

08/20/2003

Kevin J. Frank

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EXAMINER

MOTSINGER, SEAN T

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

11/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/644,680	Applicant(s) FRANK ET AL.	
	Examiner SEAN MOTSINGER	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18-26 and 31-52 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-16, 18-26, 31-42 and 45-51 is/are allowed.
- 6) ☒ Claim(s) 1, 43 and 44 is/are rejected.
- 7) ☒ Claim(s) 52 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Applicants Arguments/Amendments

1. Applicants arguments/amendments filed on 8/19/2008 have been entered and made of record.
2. Regarding applicants arguments with respect to the information disclosure statement; the IDS was considered by Examiner Smith only in the manner described in previous actions due to the large number of references provided.
3. Regarding applicants arguments with respect to the rejections under 35 U.S.C. 103; The arguments with respect to claims 1 have been fully considered but are not persuasive while the remaining rejections have been rendered moot by applicants amendments to incorporate allowable subject matter. Regarding applicants arguments with respect to claims 1; applicant appears to argue that Penny does not have “generating a digitally reconstructed radiograph that substantially corresponds to the two dimensional image data set”. However it is clear from section 2 that the DRR corresponds to a fluoroscopic image which is the two dimensional data set in fact it does not only correspond to it, it is registered to it.

Rejections Under 35 U.S.C. 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 43 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims depend from claim 28 which was canceled by this amendment it is therefore impossible to know the scope of these claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penney et al. "Validation of a two- or three-dimensional registration algorithm for aligning preoperative CT images and intraoperative fluoroscopy images" ("Penney") in view of the Series 9600 Mobile Digital Imaging System ("9600"), U.S. Patent Number 6,118,845 issued to Simon et al. ("Simon") and U.S. Patent Number 6,381,485 issued to Hunter et al. ("Hunter").
6. For claim 1, Penney discloses a method for registering two-dimensional image data with three-dimensional image data of a body of interest (abstract), said method comprising: acquiring the three-dimensional image data having first patient orientation information (abstract); acquiring the two-dimensional image data having second patient orientation information (abstract); and generating a digitally

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reconstructed radiograph that substantially corresponds to the two-dimensional image data using the three-dimensional image data and the first and second patient orientation information (abstract). 9600 discloses an imaging system that can perform the method of Penney.

7. Simon discloses a method for acquiring patient orientation information including determining how that patient was positioned or oriented relative to an imaging device during acquisition of the data (abstract).
8. Hunter discloses a method of determining an estimate of the patient's orientation with respect to a dynamic reference frame based in part on a known relation to at least one structure (col. 3 lines 37-57).
9. It would have been obvious to one of ordinary skill in the art at the time of invention to include the calibration information of Simon and the dynamic reference frame of Hunter with the 9600 to achieve the predictable results of calibrating and registering the images. It also would have been obvious to one of ordinary skill in the art at the time of invention to use the calibration markers of Simon as the plurality of reference points in known relation to a structure in Hunter to achieve the predictable results of determining an estimate of the patient's orientation with respect to a dynamic reference frame, and including a view through the three dimensional image data, along the direction of the two dimensional image data based upon the orientation information determined by Simon and Hunter.

Allowable Subject Matter

10. Claim 52 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. Claims 2-16, 18-26, 31-42 and 45-51 and are allowed.
12. The following is a statement of reasons for the indication of allowable subject matter:
- The art of record does not disclose a registration method for registering three dimensional images with two dimensional images using two similarity/cost measures. The art of record discloses registration using one similarity/cost measure. The use of at least two similarity/cost measures is novel over the art of record.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN MOTSINGER whose telephone number is (571)270-1237. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571)272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624

Motsinger
11/20/2008